

## REMARKS

### ALLOWED CLAIMS

Claims 9-18 and 20-32 are allowed.

### REJECTION UNDER 35 U.S.C. §102

Claims 1-8 are rejected under 35 U.S.C. §102(e) as being anticipated by Miura et al. (USPN 6,163,563) for reasons of record in Office Action mailed May 7, 2003.

Claim 1 has been amended for clarity.

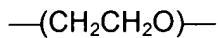
It is respectfully submitted that Miura et al. teaches a polymer **solid** electrolyte, in contrast to the present invention, which recites a polymer **gel** electrolyte. It is respectfully submitted that there are significant differences between polymer **solid** electrolytes and polymer **gel** electrolytes. For example, it is known to those skilled in the art that ionically conductive polymer **gel** electrolytes tend to be unable to maintain a gel state at high temperature because the polymeric **gel** electrolyte is apt to become fluidic with an increase in its temperature, whereas a polymer **solid** electrolyte tends to maintain a solid shape. This fluidity is partially due to the fact that a polymer **gel** electrolyte typically comprises a polymer matrix, a solvent and an electrolytic salt. This is an important difference - polymer **solid** electrolytes are typically a kind of polymeric thin film and may perform ion conduction rather than electron conduction, and are thus selected particularly to avoid battery leakage.

In particular, Miura et al. teaches a polymer **solid** electrolyte comprising a first repeating unit derived from a first monomer having an epoxide ring, a second repeating unit derived from a second monomer comprising an epoxide ring, and a third repeating unit derived from a third monomer having one epoxy group and at least one reactive function group. It is known to those skilled in the art that networks formed using epoxies tend to have a much tighter network structure than non-epoxy network structures. As noted in the abstract of Miurata et al., the polymer solid electrolyte of Miurata et al. is "also superior in processability, moldability, and mechanical strength to a conventional solid electrolyte." In col. 14, lines 15-18 of Miura et al. recite: "The polymer solid electrolyte according to the present invention is superior in mechanical strength and flexibility so that a large area thin-film solid electrolyte can be easily obtained by utilizing the properties."

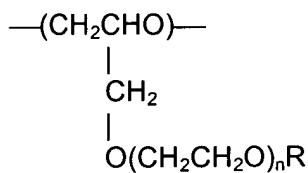
In contrast, the polymer **gel** electrolyte of the present invention is prepared not by using

an epoxide ring, but rather by preparing a terpolymer intermediate solution by dissolving a terpolymer having a repeating unit represented by formula 1, a repeating unit represented by formula 2 and a repeating unit represented by formula 3 in a first organic solvent having a boiling point of 150°C or less,

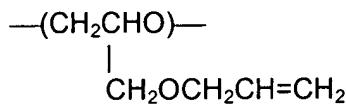
Formula 1



Formula 2



Formula 3



wherein n is an integer from 1 to 12 and R is an alkyl having 1 to 12 carbon atoms, mixing a lithium salt and a second organic solvent with the terpolymer intermediate solution to obtain a composition for forming an electrolyte, and removing the first organic solvent from the composition to form a gelled electrolyte. Note that **no epoxide rings are utilized**. Thus, a polymer **gel** electrolyte, i.e., a less rigid structure, rather than a polymer **solid** electrolyte is formed.

Thus, claim 1 is now submitted to be allowable under 25 U.S.C. §102(e) and not to be anticipated by Miura et al. (USPN 6,163,563). Since claims 2-8 depend from amended claim 1, claims 2-8 are submitted to be allowable under 25 U.S.C. §102(e) and not anticipated by Miura et al. (USPN 6,163,563) for at least the reasons that amended claim 1 is submitted to be allowable.

#### AMENDMENT OF THE SPECIFICATION

Paragraph 25 of the specification was amended to correct a typographical error.

#### CONCLUSION

In accordance with the foregoing, the specification and claim 1 have been amended. Claims 1-18 and 20-32 are pending and under consideration.

There being no further outstanding objections or rejections, it is submitted that the application is in condition for allowance. An early action to that effect is courteously solicited.

Finally, if there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

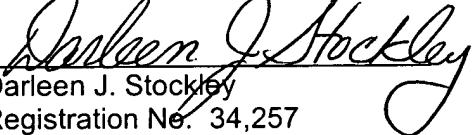
If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

STAAS & HALSEY LLP

Date: January 7, 2004

By:

  
Darleen J. Stockley  
Registration No. 34,257

1201 New York Avenue, NW, Suite 700  
Washington, D.C. 20005  
Telephone: (202) 434-1500  
Facsimile: (202) 434-1501